GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Photogrammetry and remote sensing, PG_00042504 | | |
| Field of study | Environmental Engineering | | |
| Date of commencement of studies | October 2022 | Academic year of realisation of subject | 2022/2023 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study |
| Mode of study | Part-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | Polish |
| Semester of study | 1 | ECTS credits | 3.0 |
| Learning profile | general academic profile | Assessment form | exam |
| Conducting unit | Department of Geodesy -> Faculty of Civil and Environmental Engineering | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Krystyna Michałowska | |
| | Teachers | | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 10.0 | 10.0 | 0.0 | 0.0 | 0.0 | 20 |

E-learning hours included: 0.0

**Learning activity and number of study hours**

| Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|
| Number of study hours | 20 | 5.0 | 50.0 | 75 |

**Subject objectives**

Acquainted with tools and technologies used today in photogrammetry and remote sensing. Understanding the photogrammetric products and remote sensing studies.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_U05] can rely on scientific sources for modern methods and technologies, and propose trends in the development of methods and rules for acquiring, filtering, processing and analyzing data | The student knows how to correct the distortion occurring on aerial / satellite images and he is able to assess their suitability for the development of other product e.g: DTM.<br>The student is able to interpret the content of aerial photos and satellite images. He can perform a classification based on satellite images. | [SU4] Assessment of ability to use methods and tools<br>[SU2] Assessment of ability to analyse information |
| [K7_W12] has knowledge of contemporary and useful principles on data acquisition, filtration, processing and analysis | The student has knowledge of the instruments and technologies used today in photogrammetry and remote sensing.<br>The student knows what distortions occur on aerial photos and satellite images. | [SW1] Assessment of factual knowledge |

**Subject contents**

Physical basics of photogrammetry and remote sensing. Currently operating remote sensing systems. Digital image processing (geometric and radiometric correction). Improving the quality of a digital image (working with histogram, filtration, operations between images from different spectral channels- color composite images, classification). Photogrammetry and remote sensing-areas of applications. Photogrammetric projects based on close-range and aerial photos.

**Prerequisites and co-requisites**

Knowledge of the laws of physics associated with electromagnetic radiation.

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| test | 60.0% | 60.0% |
| project | 60.0% | 40.0% |

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|---|---|---|
| Recommended reading | Basic literature | Kurczyński Z., Preuss P.: Podstawy fotogrametrii, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2003<br><br>Adamczyk J., Będkowski K.: Metody cyfrowe w teledetekcji, Wydawnictwo SGGW, Warszawa 2005<br><br>Kurczyński Z.: Lotnicze i satelitarne obrazowanie Ziemi; Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006<br><br>Ciołkosz A. Miszalski J., Olędzki J.: Interpretacja zdjęć lotniczych, PWN,Warszawa 1999 |
| | Supplementary literature | Software manuals |
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | Contemporary satellite systems-review.<br><br>Developing the landuse map on the basis of surpervised and unsupervised classification of satellite scenes. | |
| Work placement | Not applicable | |